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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,782	02/24/2004	Jung Gwan Han	YHK-0132	2202
34610 7590 08/16/2007 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200			EXAMINER SHERMAN, STEPHEN G	
			ART UNIT 2629	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/784,782

Applicant(s)

HAN ET AL.

Examiner

Stephen G. Sherman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the amendment filed 3 July 2007

Response to Arguments

2. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-8, 19, 21 and 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the claim recites the limitation "an address driver for selecting on-cells by applying data of a first voltage to the address electrode and a scan

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pulse of a second voltage to the scan electrode, and for selecting off-cells by applying data of a third voltage and the scan pulse to the scan electrodes", however, Figure 12 of the specification and page 16, line 13 to page 17, lines 21 explain that the data driver 121 applies the address pulses and scan driver 122 applies the scan pulses. Thus there is not a single driver in the specification that both applies the address and scan pulses as is claimed. Therefore, the claims do not comply with the requirements of having two separate drivers as required by the specification.

Regarding claim 19, similarly as claim 1 is described above, claim 19 recites that the address driver applied the address voltages and the scan voltages, which as described in the specification the address driver does not.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 8, 9, 13, 16 and 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukushima et al. (US 6,232,935).

Regarding claim 1, Fukushima et al. disclose a plasma display having an address electrode, a scan electrode and a sustain electrode, wherein cells are arranged at intersections of the electrodes, comprising:

an initializing driver for initializing the cells (Figure 10A shows pulse 43 and 44, which are described in column 8, lines 65-67 to be an erasing pulse and an igniting pulse. These pulses are used to initialize the cell and these pulses would inherently be applied by a driver, which would be an initializing driver since it applies the initialing pulses.); and

an address driver for selecting on-cells by applying data of a first voltage to the address electrode and a scan pulse of a second voltage to the scan electrode, and for selecting off-cells by applying data of a third voltage and the scan pulse to the scan electrodes (Figure 10A shows the address pulses 42 which is a first negative voltage and a scan pulse 45 of a second positive voltage. OFF cells would be chosen by application of zero volts which is the third voltage. These pulses would inherently be applied by a driver.),

wherein the third voltage is higher than the first voltage (Figure 10A, since the address pulse applied for selecting ON cells is negative, the third voltage, i.e. zero voltages, used to select OFF cells is higher than the first voltage.).

Regarding claim 8, Fukushima et al. disclose the plasma display of claim 1, comprising a sustain driver for applying alternately a sustain pulse of a fourth voltage to the scan electrode and the sustain electrode to cause a sustain discharge with respect

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to the on-cells (Figure 10A shows sustain pulses 46a and 46b which are of a fourth voltage and alternately applied. These pulses would inherently be applied by a driver, which would be a sustain driver since it is applying the sustain pulses..).

Regarding claim 9, please refer to the rejection of claim 1, and furthermore Fukushima et al. also disclose wherein the second voltage is higher than the first voltage (As explained above, the first voltage is a negative voltage, while the second voltage, i.e. scan voltage, is a positive value, meaning that the second voltage is higher than the first.).

Regarding claim 13. Fukushima et al. disclose the method of claim 9, further comprising supplying a fourth voltage to the sustain electrode to select the on-cells and the off-cells, in an address period (Figure 10A shows that a voltage of zero is applied to the sustain electrodes XX1 in order to allow for the selection of cells during the address period.).

Regarding claim 16, this claim is rejected under the same rationale as claim 8.

Regarding claim 20, Fukushima et al. disclose the method of claim 9, wherein the scan pulse of the second voltage to select on-cells is applied during an address period and the scan pulse to select off-cells is applied during the address period (Figure 10A shows that all of the scan pulses are applied during the address period, which

means that the scan pulses that select ON and OFF cells will each be in the address period.).

Regarding claim 21, Fukushima et al. disclose the method of claim 1, further comprising creating an address discharge within the selected on-cells when a subsequent sustain voltage is applied during a sustain period (Figure 10A shows sustain pulses 46a and 46b which cause address discharge within on-cells.).

Regarding claim 22, Fukushima et al. disclose the method of claim 21, wherein creating the address discharge includes avoiding an address discharge within the selected off-cells during the sustain period (Column 7, lines 60-63. If a cell is off, address discharge will not occur.).

7. Claims 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Iseki et al. (US 6,252,568).

Regarding claim 17, Iseki et al. disclose a driving method of a plasma display, comprising:

a reset period for initializing cells (Figure 3 shows PRIMING DISCHARGE INTERVAL, i.e. a reset period.);

an address period for selecting the cells using a scan voltage of a first polarity and a data voltage (Figure 3 shows an ADDRESSING DISCHARGE INTERVAL, i.e. an

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address period, in which a negative scan voltage Pw is applied and a data voltage Pd is applied.); and

a sustain period for maintaining a discharge of the cells using a sustain voltage of the first polarity (Figure 3 shows SUSTAINING DISCHARGE INTERVAL, i.e. a sustain period, in which a negative sustain pulse Vs is applied, which means that the polarity of the scan pulse and the sustain pulse is the same.).

Regarding claim 18, Iseki et al. disclose the method of claim 17, wherein the cells are initialized by an initializing voltage of the first polarity in the reset period (Figure 3 shows that the pulses applied during the PRIMING DISCHARGE INTERVAL are all negative, meaning that they are of the first polarity.).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US 6,232,935) in view of Du et al. (US 2003/0071577).

Regarding claim 2, Fukushima et al. disclose the plasma display of claim 1.

Fukushima et al. fail to teach wherein the initializing driver supplies an identical waveform to both of the scan electrode and the sustain electrode.

Du et al. disclose wherein an initializing driver of a plasma display supplies an identical waveform to both of the scan electrode and the sustain electrode (Figure 3 shows the reset period T1, in which PY1 is applied to the scan electrode Y and PX2 is applied to the sustain electrode X, where PY1 is identical to PX2.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to apply an identical waveform to both the sustain and scan electrodes as taught by Du et al. with the plasma display taught by Fukushima et al. in order to provide a plasma display in which the distribution of wall charges in the pixel units in the reset period are made to be less different.

Regarding claim 10, this claim is rejected under the same rationale as claim 2.

11. Claims 3, 6, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US 6,232,935) in view of Du et al. (US 2003/0071577) and further in view of Mizobata (US 2003/0095084).

Regarding claim 3, Fukushima et al. and Du et al. disclose the plasma display of claim 2.

Fukushima et al. and Du et al. fail to teach wherein the initializing driver simultaneously supplies a falling ramp waveform and a rising ramp waveform following the falling ramp waveform to the scan electrode and the sustain electrode.

Mizobata et al. disclose a plasma display wherein an initializing driver supplies a falling ramp waveform and a rising ramp waveform following the falling ramp waveform to the scan electrodes (Figure 3 shows that during period 7, there is a falling ramp supplied to the electrodes S1 to Sm during period 2 and that there is a rising ramp supplied to the electrodes S1 to Sm following the falling ramp in period 3.).

Therefore, it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to make the waveforms taught by the combination of Fukushima et al. and Du et al. have the falling and rising ramp structure as taught by Mizobata et al. in order to improve the darkroom contrast ratio.

Regarding claim 6, Fukushima et al., Du et al. and Mizobata et al. disclose the plasma display of claim 3.

Du et al. also discloses wherein the falling ramp waveform falls from a first negative voltage to a second negative voltage, an absolute value of the second negative voltage being higher than an absolute value of the first negative voltage and wherein the rising ramp waveform rises from the first negative voltage to zero V (Figure 7 shows pulse PY2 applied to the scan electrode Y. In this waveform, the lowest voltage is the second voltage and the voltage at which the waveform begins to fall is the first voltage, making the second voltage larger than the first. Figure 7 also shows that the rising part of the waveform PY2 is from the second voltage to a ground potential.).

Regarding claim 11, this claim is rejected under the same rationale as claim 3.

Regarding claim 14, this claim is rejected under the same rationale as claim 6.

12. Claims 4-5, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US 6,232,935) in view of Mizobata (US 2003/0095084) and further in view of Kobayashi (US 6,876,340).

Regarding claim 4, Fukushima et al. disclose the plasma display of claim 1.

Fukushima et al. fail to teach wherein the initializing driver supplies a falling ramp waveform and a rising ramp waveform following the falling ramp waveform to the scan electrode, and supplies a fourth voltage to the sustain electrode.

Mizobata discloses a plasma display wherein an initializing driver supplies a falling ramp waveform and a rising ramp waveform following the falling ramp waveform to the scan electrodes (Figure 3 shows that during period 7, there is a falling ramp supplied to the electrodes S1 to Sm during period 2 and that there is a rising ramp supplied to the electrodes S1 to Sm following the falling ramp in period 3.), and supplies a fourth voltage to the sustain electrode (Figure 3, lines C1-Cm receive a voltage during period 7.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to make the waveforms taught by Fukushima et al. have the falling and rising ramp structure as taught by Mizobata et al. in order to improve the darkroom contrast ratio.

Fukushima et al. and Mizobata fail to teach wherein the fourth voltage is a negative voltage.

Kobayashi discloses a plasma display in which a negative voltage is applied to the sustain electrodes during a reset period (Figure 7, electrodes Y1-Yn have a voltage that goes below 0 applied, i.e. a negative voltage.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use make the voltage applied to the sustain electrode as taught by the combination of Fukushima et al. and Mizobata have a negative voltage as taught by Kobayashi in order to provide a plasma display in which the distribution of wall charges in the pixel units in the reset period are made to be less different.

Regarding claim 5, Fukushima et al., Mizobata and Kobayashi disclose the plasma display of claim 4.

Kobayashi also discloses a sustain driver for supplying the fourth voltage to the sustain electrode in an address period to select on-cells and the off-cells (Figure 7 shows the voltage being applied to the sustain electrode during the address period.).

Regarding claim 12, this claim is rejected under the same rationale as claim 4.

13. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US 6,232,935) in view of Akiba (US 2003/0122742).

Regarding claim 7, Fukushima et al. disclose the plasma display of claim 1.

Fukushima et al. also disclose wherein the second voltage is a positive voltage (Figure 10A).

Fukushima et al. fail to teach wherein the first voltage to select the on-cells is any one of zero V and a ground voltage GND.

Akiba discloses wherein ground or zero volts is used to select on-cells in a plasma display (Paragraph [0067]).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teachings of Akiba in the plasma display taught by Fukushima et al. in order to employ a different method of achieving the same results in which the advantage of lower power consumption can be attained.

Regarding claim 15, this claim is rejected under the same rationale as claim 7.

14. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. (US 6,232,935) in view of Higashino et al. (US 7,030,839).

Regarding claim 23, Fukushima et al. disclose the method of claim 9.

Fukushima et al. fail to teach of the method further comprising maintaining wall charges within the selected off-cells during a sustain period.

Higashino et al. disclose of a method in which the wall charges of the selected off-cells are maintained during a sustain period (Column 10, lines 27-43 explain that the sustain voltage is maintained so that discharge only occurs in cells written, and not in off-cells meaning that the wall charges are not erased, but rather that the voltage applied is not enough to cause discharge.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teaching of Higashino et al. with the plasma display method taught by Fukushima et al. in order to eliminate the occurrence of erroneous display illumination in the sustain period such that superior image quality is achieved.

Regarding claim 24, Fukushima et al. and Higashino et al. disclose the method of claim 23.

Fukushima et al. also disclose wherein selecting the on-cells and selecting the off-cells occurs during an address period preceding the sustain period (Figure 10A shows that the selecting of On and OFF cells occurs during an address period which is before the sustain period.).

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

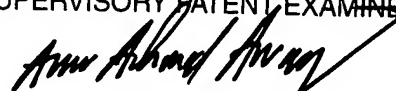
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13 August 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Amr A. Awad", is written over the printed name and title.